



Apoyamos a **comunidades** a proteger su **agua** a través de la conservación
de sus **bosques**

Project Closure Report January – April 2013 CHACO PROJECT

AID-511-A-11-00003



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This report describes the activities undertaken for the 2013 Annual Work Plan and Annual Operating Plan, which were approved by Natura's board of directors, the main funder USAID, and counterpart funders: IUCN, DOEN and Forest Trends, and details the achievements accomplished from January 1st 2013 until May 3rd 2013, when we were abruptly ordered to close project, following a government order to withdraw USAID from Bolivia.

Background

The Bolivian Nature Foundation (Natura Bolivia) is dedicated to preserve critical ecosystems through water and biodiversity conservation. Previous conservation efforts based on command and control have been hard to implement considering the magnitude of resources and logistics required to ensure compliance. The result is that land use change has continued, biodiversity has continued to disappear and ecosystem and watershed services have been lost. Moreover, paternalistic projects, without clear conditionality or assigned responsibility, have been relatively unsuccessful in achieving either of their dual conservation and sustainable development goals. Such projects, in which there is no compliance mechanism once incentives have been provided, have invariably failed to change behavior of farmers or achieved sustainable conservation.

Since 2003 Natura has been implementing a pro-poor alternative scheme of Compensation for Environmental Services (CES), which is based on directly linking the economic incentives for project beneficiaries with the preservation of natural resources. This "shared benefits, shared responsibilities" relationship has based in the first instance in one of the most important ecosystem services to humans: water.

Reciprocal Watershed Agreements (RWA) is a tool that tries to achieve the conservation of important biodiversity areas. It provides benefits to local population and at the same time ensures the maintenance of water for irrigation and domestic uses. In addition, RWA facilitates institutions creation and capacity building that can ensure sustainable mitigation and adaptation to climate change.



Since 2003 Natura has focused its efforts to preserve water sources located in and around the Amboró National Park and its Integrated Management Area, the Parabanó Municipal Protected Area and Rio Grande middle watershed in the Rio Grande Integrated Management Natural Area - Valleys of Santa Cruz (ANMI RG-VC), key areas in biodiversity and environmental functions that comprise the "Elbow of the Andes". By the end of 2012, Natura Bolivia was implementing RWA in 22 municipalities of Santa Cruz valleys, incorporating:

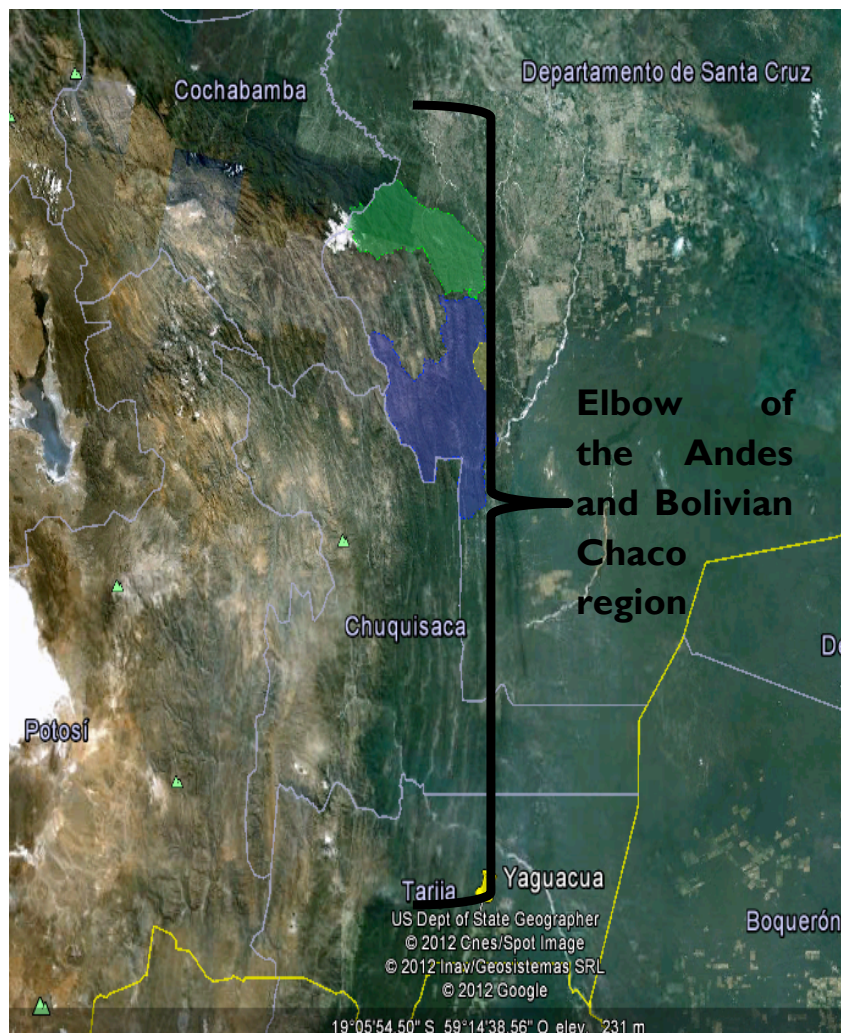
- **Municipalities.** - Local government entities close to citizens that offer governmental support to the sustainability of conservation initiatives and whose mission is to ensure water provision to citizens and natural resource management.
- **Water Cooperatives or Companies in charge of Water Provision (EPSA).** - Entities that are responsible for water distribution: Generally, they are led by a board of directors elected by the members or users of water in communities situated downstream.
- **Communities or small producers** located upstream. They receive compensation packages or direct incentives, which became new income opportunities based on non-consumptive forest activities that help maintain the natural hydrological cycle.

Operationally, an RWA scheme begins when the municipality, the Water Cooperative (or other water management body) and Natura Bolivia create a **local fund** that will grow thanks to consensual and voluntary contributions from downstream water users. These contributions are added to payment of invoices or receipts of the water service distribution provided by the Water Cooperative, who manages these resources in a differentiated bank account to ensure transparent management. All these funds are invested only in alternative conservation activities and to diversify economic incomes to upstream communities. Natura Bolivia, the municipality and the Water Cooperative allocate their own resources to remunerate their staff and pay other operating expenses.



During 2011, Natura expanded its area of work further southwards into the corridor from the Elbow of the Andes to the Chaco. The goal of this expansion, funded by USAID was to support sustainable development in the mountainous upstream communities, and help conserve the water-provisioning functions of the biodiverse Bolivian-Tucuman forests for downstream domestic consumption and irrigation in the communities of the Chaco.

Natura Bolivia's purpose was thus to replicate the experience gained in implementing RWA schemes in the inter Andean valleys, in the **Chaco**.



Matching initial work areas with the “Elbow of the Andes” and the Bolivian Chaco region

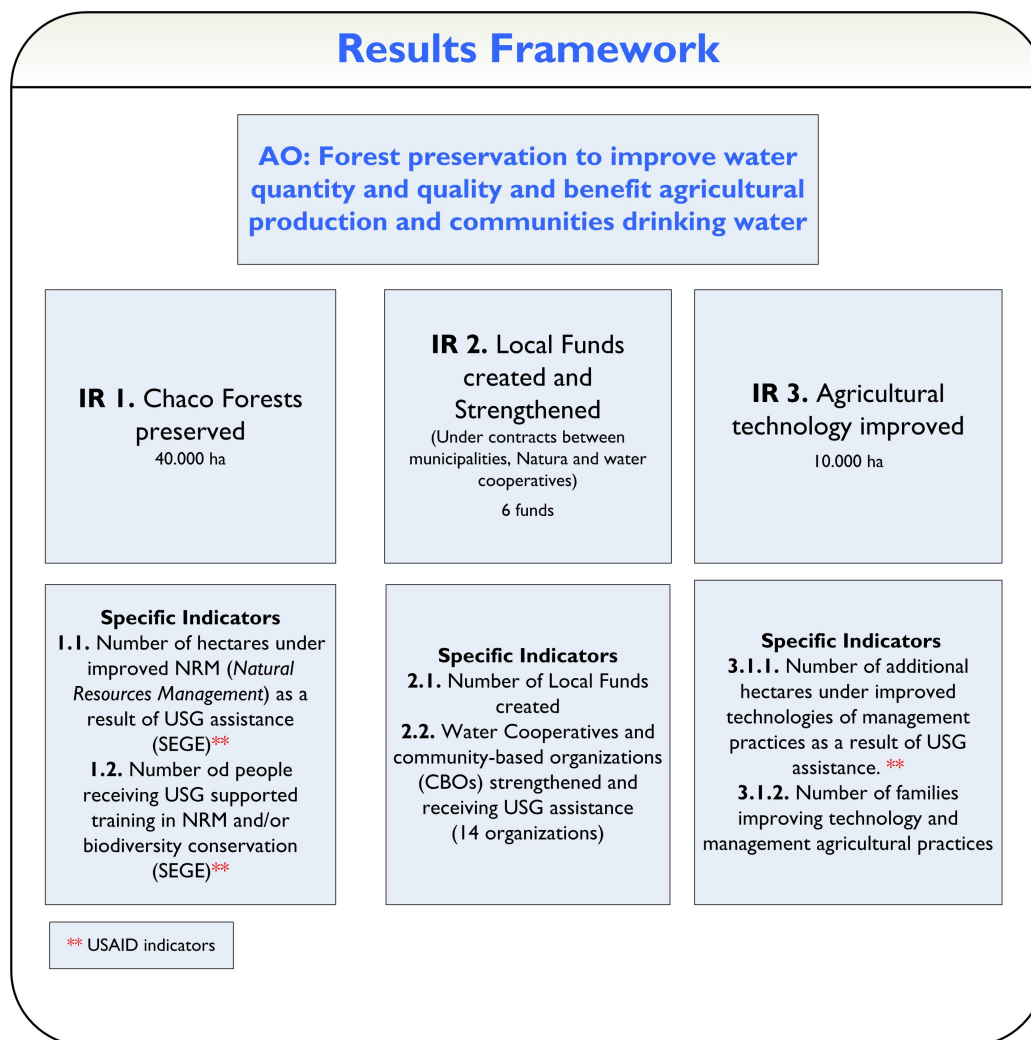
The project was designed to improve the quality and quantity of water so that families located in the Chaco region could increase their productivity and diversify their incomes. The project intends to protect the forests that generate more than 3 million cubic meters of water per year, which are exploited by larger population centers and communities of the Chaco region.

Our theory of change is presented below: the upstream deforestation that is disturbing the hydrological cycle, exacerbating poverty and causing flood/drought cycles in the Chaco, can be reduced through the implementation of upstream-downstream alliances (reciprocal watershed agreements) that simultaneously a) provide upstream development alternatives b) maintain/improve dry season water supplies c) stabilize agricultural yields and reduce downstream poverty.

Development Barriers	Institutional failures	Barrier Removal Strategy	Expected Behavior Change	Development Result
1. Upstream poverty leads to deforestation, increased runoff & low infiltration -> downstream wet season flooding then dry season water scarcity	No positive incentive to develop alternative land uses, and no locally acceptable punishment for indiscriminate deforestation	Compensation packages will make conservation an economically viable alternative that benefits upstream landowners. Municipal governments will make compensation support conditional on stopping deforestation	Upstream owners of forest lands leave critical forest standing	1a Water producing forests protected 1b Upstream incomes increase
2. Dry season water scarcity -> agricultural failure -> continued downstream poverty	Agriculture is based on flood irrigation, which given declining water yields, will never reduce poverty	Municipality-led demonstration projects (such as drip irrigation and honey production) will provide alternatives to downstream flood irrigation	Chaco irrigators associations and others see value of developing sustainable production systems	2a More efficient downstream water use 2b Incomes increase downstream
3. No awareness of relationship between upstream deforestation and water scarcity -> no downstream interest in watershed management -> no sustainable local solution	Municipal governments, water cooperatives and irrigators associations do not invest in protection of water supplies	Led by municipal governments, downstream water users will capitalize water funds as sustainable financing mechanisms to ensure that the project's development and institutional advances are sustainable	Downstream water users contribute economically to watershed conservation and ensure their own long term water supplies	3a Water supplies secured downstream 3b Chaco downstream residents livelihoods enhanced

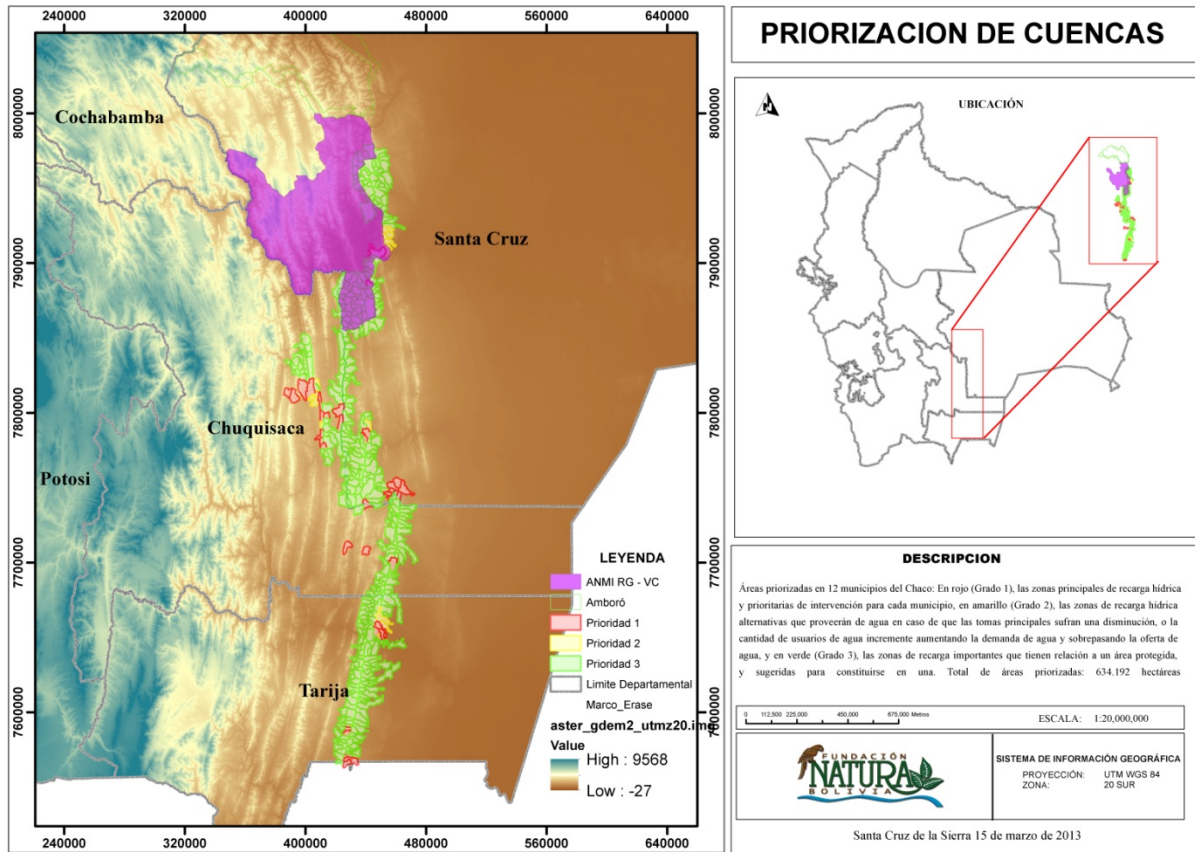
Results according to the project logical framework

According to the work plan and monitoring plan approved by Natura Bolivia and USAID, we defined the following project outcomes and goals.



Prioritization and classification of project intervention areas

The Chaco project had among its 5-year objectives the preservation of at least 40,000 hectares, constituting a factory of drinking water and irrigation for many communities of the Bolivian Chaco region. Water is an extremely scarce resource in the Chaco, with a rainfall of less than 500 milliliters per year, which makes it a semiarid ecosystem. To achieve the project's conservation goals, and to support the existing network of protected areas in the region (see figure below), Natura approached 12 municipalities and their respective public service institutions, proposing the implementation of a series of RWA along the corridor of where the Andes meet the Chaco.



By late 2012, the Chaco Project technical team had signed 7 agreements to preserve water sources (Cabezas, Gutierrez, Cuevo, Boyuibe, Machareti, Villa Vaca Guzman and Monteagudo). In February 2013, we completed the signing of an agreement with the municipality of Villamontes. Monteagudo and Villamontes receive water from two watersheds that originate in two national parks (Iñaño and Aguaragüe) and feed a population of 60.000 habitants. These watersheds are affected by land-use change and particularly, by poor natural regeneration, result of on overgrazing of livestock in the area. The incentives delivered by the project to farmers who conserve part of their forest or change their production practices will be critical to maintain these water sources.

In the first quarter of 2013, including the three days in May before we received the order to close the project, we signed RWA conservation agreements to preserve **4,865 hectares of primary forest**. This compares to 10,000 hectares established as a result for this year.

Contracts were signed for a three-year period. In the second and third years, the agreed-upon compensation payments will be made upon compliance monitoring of the contract signed by the local authorities and landowners. Compensations for the first year of the contracts were made in February in the community of Mandiyuti in Cuevo municipality, and then in several communities in the municipality of Villa Vaca Guzman.

Cuevo Municipality

This forest conservation agreement for the preservation of water sources benefit to 56 indigenous families of the Captancy of Upper Parapeti, located in upper basin, from the 125 annually planned families. It is important to highlight that the area where it has begun implementation scheme for Reciprocal Water Agreement (RWA), is a water recharge area very important, located in the Community of Mandiyuti, the watershed provides water for human consumption and irrigation to Cuevo population and is also the aquifer recharge for both wells for drinking water of Boyuibe municipality.

Villa Vaca Guzman Municipality

- 2.960 ha compensated in the municipality of Villa Vaca Guzman, communities of Arrayan, Agua Blanca, Pincal, and Nogal Pampa, reaching to beneficiat to 16 families.

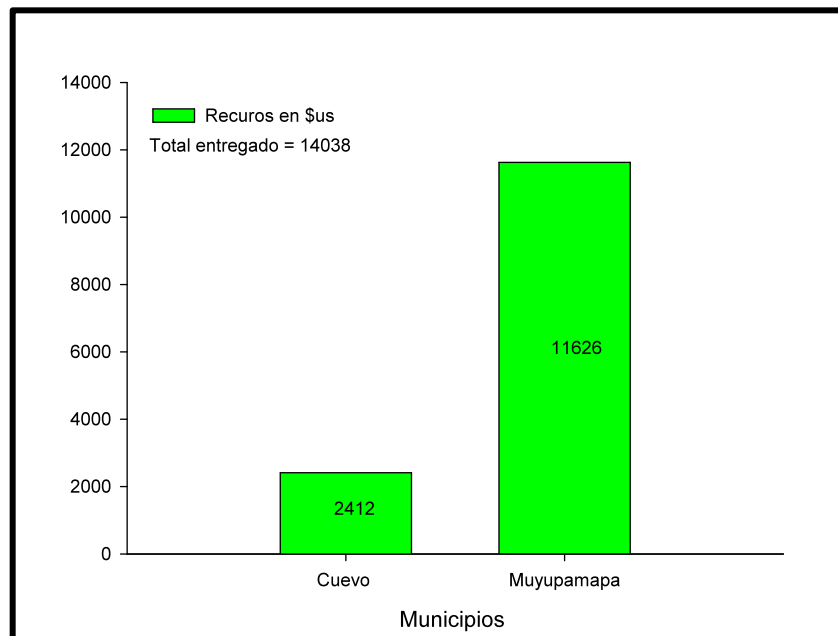
Municipality	Beneficiary Community	Beneficiary Families	Conserved hectares in hydric recharge zone
Villa Vaca Guzmán	Arrayan - Agua Blanca	4	864
	Pincal	2	914
	Nogal Pampa	5	109
	Vallecitos	5	1,073
	16 families compensated		2.960 hectares conserved

The compensation for the hectares mentioned was made in materials, as detailed below.

Compensation packages delivered in the Chaco region

Inputs	Quantity		Inputs	Quantity
Gambote Brick	1000		Plastic pipe 2 inch	20
Duralit Tile	270		Smooth wire	6
Staple	173		Bee hive	5
Barbed wire rolls	122		Roll 1-inch polytube	5
Cement bags	88		Roll 2-inch Polytube	3
Peach seedling	59		Tank 1000 lt	3
Citrus seedlings	24		Tank 500lt	2
Polytube 1/2 inch	20		Seed (Brachiaria dry zone)	2
Plastic Pipe 1/2 inch	20		Pump 2 inch	1

Cost of compensation materials



In 2013, we also conducted several activities for the strengthening of local funds and training of both males (M) and females (F).

Date	M	F	Event
15/04/2013	5	2	Meeting in Camiri office, Institutional presentation of Natura, with the presence of representatives of the European Union, experience exchange with Caritas and FAO.
13/04/2013	4	0	Meeting between the municipality of Boyuibe and the EPSA, work coordination for the compensation and contribution of members.
08/04/2013	7	1	Institutional presentation of Natura with director of COOPAGAL.
09/04/2013	5	0	Meeting in Camiri town hall, protocol presentation of Natura to the technical staff of the municipality and Zonal captain of Kaami.
16/04/2013	5	2	Proposal presentation to create Aguarague Protected Area in Macharetí, with the staff of the municipality and president of the city council.
10/04/2013	2	0	Meeting with members to define board functions and regulations, held in Villamontes with the participation of the EPSA, Natura and the municipality.
19/04/2013	28	11	Meeting for the extension of the protected area, updating the operational plan, institutional presentation of Natura with the participation of the representatives of 7 indigenous communities, participation of DIAP and the municipality of Cabezas.
24/04/2013	17	3	Meeting sponsored by Caritas, Humanism and Democracy (H&D) and PDA. Technical report about water distribution to 7 communities with participation of the Mayor of Gutiérrez and water committee of these communities.

- ✓ **73 men with information about Reciprocal Water Agreements**
- ✓ **19 women with information about Reciprocal Water Agreements**

Main achievements in 2013

- ✓ A new office was established for Natura Bolivia Foundation in the Bolivian Chaco region, based in the town of Camiri
- ✓ We performed the selection process, hiring technical and administrative team for the Chaco Project, following the administrative hiring rules of Natura Bolivia Foundation.
- ✓ Conservation of 4865 hectares of primary forest under Reciprocal Watershed Agreements in the municipalities of Villa Vaca Guzman and Cuevo.
- ✓ 56 Guarani indigenous beneficiaries of Mandiyuti Community in the town of Cuevo and 16 beneficiaries in the municipality of Villa Vaca Guzman.
- ✓ Signed a tripartite agreement with the Autonomous Municipal Government of Villa Montes, Villa Montes EPSA and Natura Bolivia Foundation.
- ✓ Signed an interagency cooperation agreement with the Association of Municipalities of Chaco Chuquisaca to strengthen local water funds through the coordinated implementation of RWA in the municipalities of Villa Vaca Guzman, Monteagudo, Machareti, Huacaya and Huacareta.
- ✓ Prioritization and initial implementation of RWA scheme in three communities in the municipality of Machareti: Tati, Isipotindi and Guari, defined with local and communal authorities.
- ✓ Presented RWA initiative to the board of directors of COOPAGAL Water Cooperative Ltd. and to the City Council of Camiri. Both institutions expressed a verbal agreement with the proposal. For the next step, both institutions will issue resolutions of approval, authorizing the signing of a tripartite agreement to initiate formalize the implementation of RWA in the Municipality of Camiri.
- ✓ We undertook two education campaigns for World Water Day in the municipalities of Monteagudo (Chuquisaca) and Villa Montes (Tarija), carrying out different activities (walking to water sources, cycling race, lectures, and water fair exhibition), with the active participation of institutions and the local populations. These campaigns allowed citizens to understand where water comes from and the importance of protecting water sources.

Status of funds supported by USAID

1.1 Environmental Local Fund of Cabezas (RWA)

Mr. Efraín Fuentes in the upper basin community of Itaguasuti was compensated in 2012 for 9 hectares he put into conservation, and in 2013 we undertook a monitoring visit of his property. Mr. Fuentes was using all the material and supplies that we had delivered according to the agreement (water storage tank of 400 liters, 1 roll of 100 meters bi-layer polytube, 1 roll of barbed wire and 1 bag of cement for the construction of a drinking trough). Once the RWA was implemented successfully for Mr. Fuentes, 15 additional citizens became interested in joining the scheme.

We continued to coordinate with the President of the Abapó Water Cooperative Ltd., Ms. Gladys Gutierrez, to complete the legal and administrative process to obtain the national Tax Identification Number (NIT). This identification number will allow to open the local fund's differentiated bank account of Abapó, and thus to continue the compensation process, given that we have many families interested in being part of the RWA in the Community of Itaguasuti.

In addition, according to a request from the Parabanó Municipal Protected Area and its management committee, efforts have been made to expand the Protected Area. We coordinated with the executive and legislative branches of the municipality and with the Departmental Protected Areas Directorate (DIAP), a dependent institution of the Governmental Department of Santa Cruz. The \$US 28,000 cost of developing a PA expansion management plan will be borne entirely by Natura, based on an agreement that the Municipality shall pay the same amount to a Local Fund for communities located within the new boundaries of Parabanó and will thus implement the RWA as a strategic line in its management plan.



PA expansion involves updating the management plan and defining programs and projects to implement the plan. Included in the plan were activities such as creating a local fund, and the development of a program to reward families who enter the RWA scheme.

I.2 Environmental Local Fund of Gutiérrez

It has not been possible to continue with the negotiations as planned, due to a problem of land overlapping between the communal lands of the TCO Kaaguazu and Yumao community. Yumao community had assumed ownership of 5000 hectares but it now appears that another Guarani community claims the same area.

Rather than put our work in Gutierrez on hold, we instead negotiated with the local executive and legislative branches, to increase the scope of our work in the municipality. We initiated work on the border of Gutierrez and Charagua municipalities in the communities of Eyti (187 families), Kapirenda (70 families), Sinai (66 families), Paja Colorada (35 families), San Miguel de Pósito (46 families), Riva Pozo (29 families) and El Cruce (74 families), all of which are located in the water recharge area for their own and other communities. The conservation of the water sources around these communities will directly benefit 620 Guarani families.

Two institutions already working in the area, CARITAS and the PDA, expressed that they wanted to be part of the RWA so Natura coordinated meeting convened by the Mayor, Prof. Angel Bartolo, where Natura presented the RWA concept.

I.3 Environmental local Fund of Cuevo (RWA)

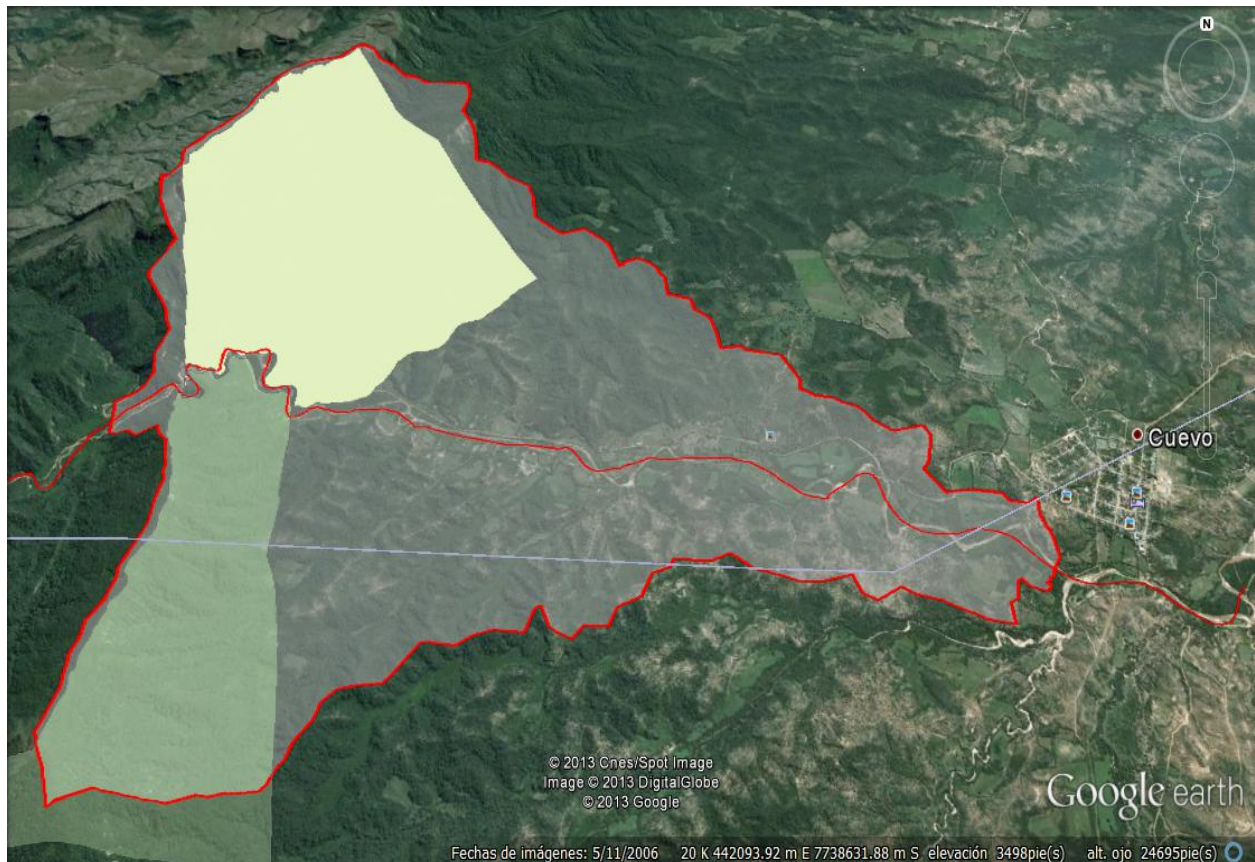
This fund has the purpose of conserving the water sources in the territory of the indigenous community Mandiyuti. Natura took around 10 months to conform the local water fund after our first meeting with the mayor—a record! The agreement was finalized with the signature of Mr. Eugene Abareyu and Mr. Julian Colque in their quality of Captains, of the communities of Mandiyuti I (Cuevo, Santa Cruz) Mandiyuti II (Huacaya, Chuquisca) respectively. In February 2013 we signed 3-year conservation agreements for 1,905 hectares of primary forest. Compensation was made in the form of 47 rolls of barbed wire and 47 kilograms of staples. Future compensations will be made subject to compliance monitoring.

Pictures of the delivery of compensation and public act in the presence of local authorities



Fifty-six indigenous families Guaraní benefitted from this forest and water conservation agreement. The conservation area provides water for human consumption and irrigation in the population of Cuevo, and also recharges two water wells in the Municipality of Boyuibe.

Mapa 2. Conservation area (yellow polygon) in the community of Mandiyuti – Cuevo



I.4 Environmental local Fund of Boyuibe

The institutional structure to operate this fund was finalized in late 2012. The local Boyuibe EPSA opened a bank account for the local fund in January. The municipality made its payment immediately and Natura contributed in April 2013. We then purchased materials (23 rolls of barbed wire and 23 kilos of staples), which was held under the safekeeping of the EPSA local System of Boyuibe with the first compensation due to be made in May 2013. These compensations were suspended, however, as a result of the closing of the project



I.5 Environmental Local Fund of Camiri

In February 2013, Natura opened the Chaco USAID project office in the city of Camiri. It was expected that this permanent office would ease communication with the municipalities in the project area, increase trust with our allies and public and private local institutions of the Bolivian Chaco.

In terms of the local fund, we presented the RWA scheme to the full board of the COOPAGAL Water Cooperative Ltd., who verbally agreed with the initiative proposed by Natura. The next step is to draft a resolution of the EPSA-Camiri board approving the proposal and committing counterpart resources. Notwithstanding the political instability being experienced Camiri Municipality, we presented at the RWA scheme to the full City Council. The Council expressed its agreement to instruct the mayor, Mr. Gonzalo Moreno to sign an agreement as soon as possible.

However, by the end of the USAID project, we still had not been able to convince either the EPSA Board or the Mayor to sign a tripartite agreement.



Natura also participated in several meetings and workshops related to the theme of water at the municipal level. These meetings explained our objectives and the importance in preserving the environmental functions of forests so that they continue to provide essential environmental functions, ensuring water for drinking and irrigation for food security.

I.6 Environmental local Fund of Monteagudo

In January we opened an office in the municipality of Monteagudo, in a space shared with by the Bañado River Watershed Committee. We expect that a near permanent presence of Natura in Monteagudo (Mr. Pacifico Callejas), the municipalities of the Chuquisaqueño Chaco, and pertinent local institutions will increasingly gain confidence that RWA is a long-term project and we will also develop positive synergies for our work.

The RWA compensation program was initiated in February in communities prioritized by the Monteagudo municipal authorities: Alto Divisadero, Naranjitos, Cañón Largo, Pucamayo, Chuyayaco, San Miguel del Bañado, San Miguel de las Pampas and Heredia. After presenting the RWA concept, we measured the properties of 36 families who volunteered to enter the scheme. We have identified 31 families who will sign conservation agreements to protect cloud forest. At the end of the USAID funded project we were managing the disbursement of the Monteagudo municipal government to immediately proceed with the compensation.

We also signed an inter-institutional framework agreement to cooperate with the Federation (Mancommunity) of Municipalities of the Chuquisaqueño Chaco. The Mancommunity is thus now the fourth contributor to the Local Funds in the municipalities of: Monteagudo, Villa Vaca Guzmán, Huacareta, Huacaya and Machareti, with three goals:

- ✓ Conservation of water sources through forest conservation,
- ✓ Environmental education, aimed at efficient use of water in Lower Basin,
- ✓ Technology transfer best practices to increase productivity in Lower Basin.



In Monteagudo we undertook a social marketing campaign was during the week of the Festival of the Water (18th-22nd March). This campaign consisted of educating citizens about where water comes and explaining each citizen's role in the conservation of the water. The city of Monteagudo receives water of the Zapallar watershed, part of the Iñaño National Park, but very few people in Monteagudo are aware of this. Natura led a number of activities (conferences on the subject water with the communities of the Zapallar watershed; a walk through the watershed, etc). The festivities had the support of students and townspeople and other local institutions that also presented on subjects related to water. Through these activities we strengthened our alliances with GIZ, MMCH, Municipal government, the Civic Committee, the Municipal Education District, Banco Fie, Prodem, the Electricity Cooperative COSERMO, World Vision and other NGOs in Monteagudo.

I.7 Environmental Local Fund of Villa Vaca Guzman

In February we initiated the RWA process with the municipal authorities and the Muyupampa Local Water Provision EPSA in five communities (Aryayan Agua Blanca, Pincal, Vallecitos, Walnut Pampa and Tunal). We followed the RWA protocol in a stepwise manner, with the proposal being presented in each of these communities and interested landowners were immediately able to participate in the measuring of the parts of their properties they wished to put under conservation agreements. On April 16th we proceed to compensate families for the preservation of 2960 acres of forest critical to their water supply.

I.8 Environmental Local Fund of Villa Montes

One of the greatest achievements of the project was completed on February 18th, with the signing of the tripartite agreement between the Municipal Government of Villa Montes, the local Water Provider of Villa Montes and Natura Bolivia Foundation. Given the large population of Villamontes (25,000) this city has great potential to serve as an example for the neighboring municipalities of Carapari and Yacuiba.



Signature of the tripartite agreement in Villa Montes

After the signing of the agreement, we formally launched the Local Fund, organizing three meetings of the board, i.e. the municipality, the EPSA and Natura. We also opened a bank account, so that the EPSA can now receive and manage the financial resources that will conserve water sources in the municipality of Villamontes. Other topics discussed during the board meetings were: adoption of the local fund regulations, the creation of the board and prioritization of conservation areas within the previously selected watersheds.

We also organized a social marketing campaign. The campaign was run in March, with the objective of celebrating and drawing citizens' attention to World Water Day. Within this framework, Natura led a series of activities including a conference on water issues with Social Manchaco EPSA staff, the town hall, and the Villamontes Autonomous Departmental Government; and also organized a field trip to the Villamontes water source with school children.

1.9 Environmental Local Fund of Machareti

In the Municipality of Machareti, RWA implementation was prioritized in three communities: Tati, Isipotindi, and Guari, important water recharge areas for the town of Machareti. The work began with the identification of the land tenure situation in each community (if private, or community and identification of owners). When the USAID project closed we were completing GIS deskwork and were about to initiate the RWA protocol and the compensation process.



Socialization of RWA – Machareti

Other advances

2.1 Promote policies to maintain and increase environmental functions

We worked with the Bolivian Society for Environmental Law (SBDA) to help the Municipal Government of Monteagudo develop the natural resources and environment chapter of the municipal constitution. The discussion and drafting phase has now concluded and in the coming months we will proceed with socialization process with the commission. In a similar way we have supported the municipalities of Villa Montes and Cuevo.

2.2 Baseline data collection

In order to measure the impact of the USAID project, we carried out a baseline survey with three components a) socioeconomic, b) biophysical and c) biodiversity. We applied the three components of the baseline in a total of 94 communities, in 9 municipalities prior to project initiation. We had planned to apply the same methodology after project closure, and measure the impact of the intervention, but unfortunately the project was suspended far earlier than expected.

Natura developed the methodology for the collection of socioeconomic information with the support of the Department of Economics of Massachusetts Institute of Technology (MIT) and the Kennedy School of Harvard University. The main purpose of the baseline was to obtain comprehensive information about each family where project was implemented. This information will help to plan future interventions in this area and will also serve to measure the project's impact on a number of indicators such as income, education, health and particularly to know how decisions regards the forest. The survey applied with 176 questions, including the following topics:

1. Basic household Information
2. Income sources, including agriculture
3. Information about interactions with institutions
4. Research on moral values and more specifically about the environment
5. Information services and support provided by local government

After field surveys data collection in 2012, the digitalization and tabulation of the surveys was concluded between February and April of 2013 with the first and second tabulation, quality control and cleaning of the database.